ABSTRACT OF THE DISCLOSURE

The present invention is directed to a method of forming a gate electrode in a semiconductor device, which is capable of reducing a line width of the gate electrode by performing a photolithography process after defining a wide region on which a gate electrode is located on a photoresist twice such that the line width of the gate electrode is not subject to a wavelength of a light source used when the photolithography process is performed. The method comprises forming a gate oxide on a semiconductor substrate, depositing a polysilicon on the gate oxide, forming a mask thin film on the polysilicon, patterning the mask thin film using a photolithography process twice, wherein one photolithography process is performed with a mask pattern which masks neighboring gate electrode areas and an area between the neighboring gate electrode areas, another photolithography process is performed with a mask pattern which exposes the area between the neighboring gate electrode areas, etching the polysilicon using the mask thin film pattern, and removing the mask thin film pattern on the polysilicon.